

## Introduction

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# Kicking Over the Traces

AS WENDELL Berry gently reminded me, I am not a farmer.

In fact, when I visited Lane's Landing Farm, I would have been hard-pressed to tell you the difference between the humus in the soil and the hummus that goes with pita bread. I certainly could not have defined the term "tilth." I had no idea that chickens prefer to drink cold water, that a dibbler and a squeeze chute are pieces of farm equipment, or that carrots do best when they're grown after beans. But things have changed. I now understand that learning from farmers and experiencing agrarian life can make me a better doctor. I've also discovered how farming, at its best, can offer a bounty of valuable secrets for transforming our personal health and the practice of medicine.

If you can't see the connection, don't worry—you're not alone. My medical colleagues wonder why I've substituted farm time for the more traditional continuing medical education conferences. And when I tell friends and patients that I've been writing a book exploring the links between farming and medicine, their typical response is a polite nod.

People ask if I'm working on a doctor's version of *Silent Spring*, Rachel Carson's game-changing book about the devastating effects of pesticides. They bring up their favorite farm-related health concern, such as the connection between antibiotic use in animals and drug-resistant infections in humans, the unknown health effects of eating GMO (genetically modified organism) foods, or the contamination of our drinking water by fertilizers and pesticides. Others simply say, "Ah, yes, you mean the link between healthy food and healthy people?" To these solicitous questioners I explain that while the book addresses all these topics, no single one of them is the main focus. Rather, *Farmacology* explores what the science and art of sustainable agriculture can teach us about health and healing.

My quest has led me in many directions. The journey started at a biodynamic farm in the state of Washington, where I came to understand the profound connection between healthy soil and a healthy body. Next, I traveled to a ranch in the Ozarks, where a crusty Missourian's cattle-raising techniques shed light on the way to raise healthy children. Two chicken farms in Arkansas held lessons about one of the most powerful forces that affect us: stress. The pest management approach used by a winery in California offered a compelling new way to understand and treat cancer. A community garden in the Bronx showed me that food grown in the inner city offers health benefits far beyond the nutrient value of the produce itself. And finally, a visit to an aromatic herb farmer helped me unlock the secrets to healthy aging and sustainable beauty. Each of these stories, set on a different type of farm and in a different part of the country, offers a new paradigm for healing and farm-to-body lessons that hold immense value in everyday life.

## MY GERMINATION

So what inspired me to "kick over the traces" and start seeking insight from farmers? Perhaps this is best answered by a brief history of my long-standing (albeit intermittent) connection to the agricultural profession.

First, there was my own germination, which took place on a farm—or more accurately, in a worker’s shack somewhere between fruiting persimmon trees, a henhouse, and a braying donkey named Moshe. It was 1965, and my parents had left their hometown near Boston to join the excitement of the kibbutz cooperative farming movement in Israel. There they spent their days picking fruit and tending animals, a time they both distinctly remember as rosy and carefree. They left the kibbutz shortly before I was born. (“We didn’t want a communal baby” was my mother’s explanation.) But I like to think that this prenatal exposure to an agrarian lifestyle made some kind of enduring impression.

By 1968 my parents had returned to the United States and were enrolled as graduate students at the University of Michigan. One weekend their road trip through the valleys of upstate New York ended with an impulse purchase of a 125-acre farm—the cost of \$15,000 ate up my parents’ entire nest egg. “The Farm” (as it would thereafter be named) was previously owned by Orson Sheldon, the last in the long line of Sheldons who had homesteaded there since the American Revolution. Sheldon had managed to run the Farm into complete disrepair before cashing in his inheritance. When we took over the land, an ad hoc dump behind the house was strewn with Dinty Moore beef stew cans and liquor bottles, and the early-nineteenth-century farmhouse was so unlivable that it had been converted to a stable—that is, until the horses and cows broke through the rotted oak floorboards and fell into the basement. At the bitter end, both Sheldon and the animals were living in the barn.

Looking back, I can now say that my mother and father were wonderful parents . . . but terrible farmers. On several occasions, spurred on by the 1960s version of our current “back to the land” mania, they tried to homestead on the Farm. They enrolled my brother and me in the local school, planted a garden, and started to collect livestock. But they were urban kids with limited country smarts and few mentors aside from Mr. Lapan, the neighboring dairy farmer who quickly overcame his hippie phobia and

would appear in our driveway to offer fatherly advice and shake his head at my parents' mistakes. Needless to say, things on the Farm did not exactly flourish, and our series of homesteading attempts always ended in the same way: As the cold fall days confined us to the farmhouse, the bickering would start, and soon winter would blast in, offering the final dissuasion. By late December my parents would drain the water pipes, sell or slaughter the animals, and head to Washington, DC, in search of yet another post with the Peace Corps. These assignments, although tinged with a sense of failure, were a welcome relief from the snowdrifts and the yoke of daily farming. They also took us to new and distant lands like Morocco, Afghanistan, and Tunisia.

Throughout these exotic travels, and even when we settled in Washington, DC, for my high school years, the Farm remained our home base, the place to which we returned. There my brother and I were free to run amok, and it was most certainly there that my primordial medical brain recorded its first health lessons. Food from the Farm was always connected to a feeling of wellness and renewal: my mother's dolmas, made from the wild grape leaves that covered the old icehouse; the snap peas from the garden; the pure grassy sweetness of the fresh milk I collected by dipping our stainless steel can into the depths of the Lapans' cooling vat. I marveled at the life force I felt from the animals—an electricity that made my skin tingle when I offered a sucking thumb to an unsteady newborn calf in the Lapans' birthing shed or when I stood so close to a cow that her sweet breath misted my face.

It was also on the Farm that I first felt compassion (and sometimes a morbid fascination) for the sick, the suffering, and the dead. One morning I discovered our only lamb beheaded by a marauding wild dog; I sat in her enclosure, my own head buried deep in my father's arms, and howled in grief. Yet in the midst of my mourning, I clearly recall freeing one eye to check out the network of arteries, sinew, and spinal cord that trailed off into the dirt.

Over the years, distracted by city life and my studies, I spent much less time on the Farm, and by the time I was in my medical training my parents had decided to sell the property and spend part of the year in California. At that point I rarely ventured beyond dimly lit lecture halls or the anti-septic rooms of Boston's hospitals, and my only connection to farming was through my friend and medical school classmate Grant Colfax.

Grant and his three brothers grew up on Shining Moon Goat Ranch in Mendocino County, California, where they were home-schooled by their ex-professor parents, Micki and David. Because of his goats, Grant seemed to know more about medicine than the rest of us. Sitting side by side at the back of the lecture hall, he would fill me in on the goat equivalent of whatever disease was being presented that day. When it was a rare genetic disorder, Grant informed me that his French Alpines occasionally were born with a similar defect. And when we learned about AIDS, Grant was already an expert because his goats were susceptible to the caprine equivalent, a lente virus called CAE. (One can only wonder whether it was in part his early familiarity with the disease that led him to become the director of AIDS prevention for the city of San Francisco and later the AIDS policy adviser to the White House.)

Early on in my medical training I visited Grant at Shining Moon, and in retrospect that trip opened my eyes to a new way of doctoring. At Harvard Medical School I was taught by a long list of eminent scientists, each recognized for a life-saving discovery, but rarely were they role models for engaging with people and keeping them healthy. During an obstetrics rotation, my physician preceptors hardly ever counseled their patients about diet, exercise, stress management, or other wellness issues. Nor did I see them support their patients in labor, a job that was left to the nurses. Instead, their job was to perform ultrasounds throughout pregnancy and, during the birth process, to interpret data from the monitors in the hall, and to step into the delivery room to catch the baby or—disconcertingly often—to inform parents it was time for a cesarean section. By contrast, on

the ranch I observed Grant and Micki discussing their herd and strategizing about how to keep each goat healthy throughout the life cycle. My visit coincided with kidding season: I was amazed at how Grant rarely strayed from the laboring doe's side. I kept him supplied with sandwiches and coffee as he winced sympathetically through each uterine contraction, spending sleepless nights huddled on a cot in the open-air barn. This gave me a whole new understanding of what it meant to be a caregiver.

Several years later, during my family medicine internship in a community hospital in Salinas—the so-called lettuce basket of California—it was the ugly side of farming that etched itself on my consciousness. While on call in the hospital emergency room, the EMTs brought in on gurneys two young Mexican field workers. The first, a woman, was seizing, her pregnant belly rising and falling like a beach ball in the surf. The other, a man, lay on his side, his body contracted with gut-wrenching pain while a steady stream of drool ran out the corner of his mouth and pooled in a plastic basin. From this macabre scene, the image that most haunts me is their fingers, stained a reddish-black from the juice of strawberry fruit and leaves. This was my first of many encounters with organophosphate pesticide poisoning.

Since then, many of the agricultural practices in the Salinas Valley have changed for the better. But at the time the smell of farm chemicals seemed to be everywhere—smells that I came to associate with bile, seizures, asthma, and a ghoulish assortment of fetal malformations I saw in the hospital's obstetrics ward. Driving home after a long night on call, I would forget where I was and roll down my car window in search of fresh air; suddenly the car would be awash with the odor of diesel fuel and unhealthy earth, soil drenched in ammonia, bromide, and untold other chemicals.

I desperately sought an antidote to these experiences. My husband, Ross, and I were newlyweds, we were both overworked, and our recreation was to create a garden. We cooed over baby eggplants and rejoiced over our first bean sprouts. We suspended a hammock between two pepper trees

that bordered our plot, and we slept there at night, cramped and chilled but lulled to sleep by the sound of new life pushing through the soil. While we took immense pleasure from that garden, our schedules prevented us from mounting a concerted defense against weeds and pests. This experience too had a profound influence on me; I learned that nature, even with a minimum of attention, is perfectly capable of reaching her own balance and offering an impressive bounty.

Over the next two decades farming continued to play a role in my life and in my medical career. I've worked with patients to help them find a diet more harmonious with the seasons; I've written about eating traditions in cultures still closely tied to the earth, and I chat each week with my favorite farmers (or at least their representatives) at the Berkeley farmers' market. And yes, I have gardened. But it was one slim book, found serendipitously in the free box outside a local bookstore, that expanded my focus and led me to this story.

## THE SOUL OF SOIL

*The Soul of Soil*, written by Grace Gershuny and Joe Smillie, was such a compelling title that I scooped it out of the free box and, finding a table in a nearby café, I tore through all five chapters in one sitting. It was a guidebook to help farmers and master gardeners improve and care for their soils. What initially intrigued me was the detailed description of a soil ecosystem where the nutrient exchange between soil, microbe, and plant sounded curiously similar to what takes place in our own intestines. This was also the first time I understood that the chemical makeup of soil has roughly the same ratio of nitrogen-to-carbon and a similar range for normal pH (6.0 to 7.5) as the human body. Like our own biosystems, it too depends on bacteria and fungi to supply it with the fats, amino acids, and carbohydrates that make up its structures. Midway through the book, it suddenly dawned on me that the carbon, nitrogen, and every mineral and

vitamin that is a building block in our own bodies is derived from soil. In other words, we are not simply nourished by the soil, we *are* of the soil. By the last chapter, I realized this book was not just a farmers' manual but one of the most engrossing medical texts I had ever read. Here was a new vision for how to rejuvenate, rebalance, and heal a complex living organism. I began to wonder, could its principles be applied to me, to my patients, to all of us?

### BEYOND DIAGNOSE AND CONQUER

Throughout my career I have sought better ways to approach health and healing. The reductionist medical training that doctors receive is useful when one discrete issue trumps all others—an ingrown toenail, a urinary tract infection, or an appendicitis. Focusing on a single factor—the errant spicule of nail, the bug in the urine, the inflamed pouch of intestine—usually solves the problem. This “divide and conquer” (or “diagnose and conquer”) strategy has dominated scientific inquiry for centuries. It is best captured by the seventeenth-century philosopher René Descartes's famous declaration: “Divide each difficulty into as many parts as is feasible and necessary to resolve it.”

But most of the time our health needs are more complex and dynamic, just like the soil, and most of what ails us today—depression, anxiety, diabetes, heart disease, fatigue—is multifactorial, chronic, and not well served by a static and highly focused approach. On one level there is our physical makeup: our DNA and the hormones, nerves, and other tissues that manifest this coded information. These structures and chemicals sometimes have an imbalance that can be measured and corrected—such as blood sugars, blood pressures, or hormone levels. But addressing these discrete issues, while important, is only one piece of the puzzle and rarely translates into optimum health. Other important factors include our emotions and mood, whether or not we experience pain, our energy levels, the quality of our



sleep, the food we eat, our relationships, if and how often we exercise, the place we live, and the air we breathe.

So how do we put together all these pieces of the puzzle to best serve our health needs? This question has led me to stray beyond the confines of “business as usual” medicine and to try different things over the years. I’ve restructured my practice to spend more time with each patient (the standard ten- to fifteen-minute medical appointment stems from a widely accepted idea within my profession that only one, or maybe two, issues should be succinctly addressed at each visit), I carefully consider each prescription, and I collaborate closely with medical specialists to streamline my patients’ medication lists and help them avoid unnecessary procedures. I’ve referred patients to nonphysician colleagues—skilled physical therapists, mental health therapists, acupuncturists, nutritionists, osteopaths, naturopaths, and herbalists—who I felt could support their healing process with fewer side effects. And I’ve attended a variety of holistic medical conferences and workshops, with the hope of finding new models that better address our complex health needs. These programs, while offering me valuable lessons on how to use gentler, nonpharmacologic modalities—such as biofeedback, nutrition, and herbs—rarely provided a new prism through which I could contemplate wellness. Like me, most of my teachers were having trouble breaking away from the reductionist model. I even began to investigate other medical systems—Chinese, Native American, Ayurvedic, homeopathic—that seemed to have a more dynamic and interactive way of understanding health, but I quickly realized that to correctly practice these forms of medicine would require years of study. Moreover, there was much about my own formal training that I valued. What I needed was a new worldview that was still rooted in biomedical science—but I had no idea where to look. Or at least I thought I didn’t . . . until that soil guide for master gardeners reminded me about my old friend, farming.

Perhaps, learning from farmers, I could find a better way to maintain balance and wellness within a living system.

## AGRICULTURE AND MEDICINE: A COMMON HISTORY

*The Soul of Soil* set me on a new path of discovery. I then made my way through books by Albert Howard, Lady Balfour, J. I. Rodale, Masanobu Fukuoka, F. H. King, Vandana Shiva, Bill McKibben, Frances Moore Lappé, and Michael Pollan—writers past and present well known to anyone involved with ecology and sustainable farming. I also read countless scientific articles written by contemporary agriculturists as well as working papers issued by the United Nations, the World Health Organization (WHO), and other international working groups with titles like “Food and Farming: The Future of Sustainability.” I started with Sir Albert Howard, who is considered by many to be the grandfather of modern organic farming. In 1947 Sir Albert published the first edition of *The Soil and Health*, a book inspired by his decades as an agricultural consultant in India and the United Kingdom. He writes: “The first duty of the agriculturist must always be to understand that he is a part of Nature.” Sir Albert laid out the principles I had observed in my own garden: When Nature farms, she recycles everything, never wastes, always leaves a reserve, always has a period of fallow, and always includes animals. He makes the point that, for thousands of years, the most successful farmers have been men and women who were keen observers of Nature and respected her principles.

Reading Sir Albert Howard helped me to realize that the professions of farming and medicine grew out of a shared goal: to sustain individuals and communities by supporting the workings of nature and intervening—oh so judiciously—in the cycle of birth, growth, death, and decay. Of course, prior to the scientific revolution the possibilities for “intervention” were fairly limited. For a farmer, they included seed saving, harvesting, cultivating, sowing, herding, and composting, while doctors and other healers might offer solace, assist at a birth or a death, or treat an ailment with a prayer, a behavioral prescription, a diet, or a poultice of herbs.

Although it is hard to pinpoint the true beginnings of modern agriculture and medicine, we know that ideas generated during the European Renaissance shaped both disciplines as we know them today. No longer satisfied with merely relying on folklore, intuition, and experience, pioneers in both fields (who were often one and the same) developed a scientific method to test observations and to better understand the inner workings of all living matter. From those observations grew the idea that nature, when compartmentalized and scrutinized, will reveal all its mechanisms.

Over the following centuries, this reductionist approach led to great insights in all the sciences—physics, chemistry, mathematics, microbiology—further contributing to the advancement of medicine and agriculture. In the early to mid-twentieth century, spurred on by the technological demands of two world wars, we saw our most celebrated breakthroughs in both professions. Tanks became tractors; nerve gas became chemotherapies and pesticides; explosives became fertilizers; and powerful antibiotics and antiseptics made an easy transition from war to peacetime use. This was the golden age of reductionist science: These innovations boosted farm yields, alleviating hunger and poverty in many parts of the world, and they offered new medicines to prevent and treat deadly diseases.

But our unilateral focus on solving health and farming problems by subdividing them into smaller and smaller parts has reached a point of diminishing returns. While breakthroughs such as gene mapping, computational science, and nuclear imaging have given us volumes of new information about the inner workings of our bodies and the natural world, they have also generated a greater demand for sophisticated interventions and increased the need for specialists to manage these interventions. This, in turn, has driven costs to an unsustainable level and fragmented important healing relationships, including the age-old connections between farmer and eater, and between patient and healer. Even more perturbing, many of the technologies intended to save lives are now contributing to our modern health woes. This includes an epidemic of obesity, diabetes, and heart dis-

ease linked to an abundance of corn, soy, and wheat produced on industrial farms; widespread bacterial, viral, and fungal resistance from antibiotic and pesticide overuse; a nutrient-depleted food supply from overtreated soil; and an explosion of cancers, lung disease, and other chronic ailments associated with the chemical by-products of Big Farm and Big Pharma.

## SIGNS OF CHANGE

In response to all of these worrisome trends, things are starting to change . . . at least for farming. I now understand that the whole-system approach that captivated me in *The Soul of Soil* is part of a much greater paradigm shift within the agricultural profession. The enormity of this shift can be measured by understanding that since 2002 California, Indiana, Kansas, Wisconsin, and other agricultural states have seen a 500 percent increase in small to midsize farms that are ecologically or holistically managed. Today, sales of organic produce represent the fastest-growing sector within agriculture. Although the factory farm model continues to dominate, many large agriculture schools, such as the University of Washington and the University of California, Davis, have begun to develop teaching and research programs in sustainable agriculture, focusing on key areas such as water, energy, and soil conservation and integrated pest management (more on this in the following chapters). Even within the political sphere, advocates of sustainable farming have increased their clout. As I write, dozens of organizations representing consumers and farmers are pressuring lawmakers to pass a ratified (2013) Farm Bill that ends subsidies to industrial farms while diverting funds to support conservational stewardship and agriculture.

This paradigm shift goes by many names, including holistic, integrated, ecological, and sustainable, but what all these labels share is the idea that a farm is not just a collection of parts but a complex (and sometimes unwieldy) living system. Implicit in this approach is the idea that true health gains for humans and other members of the farm system are to be had by

better understanding the interconnections among these living parts and by using the technologies of modern science to subtly enhance them.

Medicine, by contrast, remains steadfastly devoted to the principles of reductionism. Not that I don't see signs of change: The current MCAT (medical college admission test), for example, has expanded beyond a narrow focus on basic science to include more questions on the social sciences, cross-cultural studies, and critical analysis. Recent medical articles have called also for a "complexity approach"—that is, one in which many factors, including biological markers, patient and physician expectations, lifestyle choices, and physical environment, play a role in treatment or even wellness regimes. Perhaps the most significant effort to shift medicine's worldview has been undertaken by Andrew Weil and his colleagues at the University of Arizona. They have established a health professional training program in integrative medicine that offers courses in nutrition, herbal medicine, and other nonpharmaceutical treatments while exploring new paradigms for health care. Despite these signs of change, it is fair to say that most of us in the medical profession are just starting to grapple with what it means to take a "whole system" approach to health and healing. Agriculture, meanwhile, has been considering this question for decades.

From my perspective, there are many reasons why agriculture is ahead of medicine when it comes to weblike thinking, starting with the simple fact that farming, even at its most technological, has never completely turned its back on nature. Growing produce or raising animals on any significant scale must, by and large, take place outdoors, where there is always the possibility of a thunderstorm, a drought, or an infestation. In medicine, on the other hand, we have figured out how to mechanically sustain a beating heart or nurture a baby in an incubator, and this capability has led us to believe that nature can readily be removed from the equation.

It is also easier to perform experiments in agriculture than in medicine, and farmers can be more nimble than doctors in testing new models and

implementing their outcomes. In agriculture, one can make an observation, ask a question, design a study, and potentially develop a radically new approach within the span of one or two growing cycles. In medicine, it can take decades or even generations for the success of a new intervention to become apparent. Ethical, medical-legal, financial, and administrative considerations also make it hard to question or change standard practices—even when those practices have unclear benefits and carry considerable risk. (For example, between 15 and 20 percent of cesarean sections performed in the average U.S. hospital are deemed medically unnecessary, and many medical centers continue to promote PSA screening tests for prostate cancer despite the lack of conclusive evidence that this test either saves lives or alleviates suffering.)

Finally, there is the culture of each profession. Agriculture calls for a certain resourcefulness, the ability to do more with less—a natural result of working within a relatively low-paying and (with the exception of factory farms) meagerly subsidized profession. As a consequence, farming has more than its share of mavericks and go-it-alone cowboys, folks willing to tinker so as to better meet the demands of families, communities, and the soil. In medicine, on the other hand, we frown on those who try to buck the system. One might even say that our guiding oath to “first do no harm,” which appropriately reminds us of the sanctity of human life, has been translated into a culture of caution and conservatism.

I must confess that I am not immune to this culture. But once I understood how much the cowboy eco-farmers had to teach me about health and healing, I gained some of their boldness. I decided to take the leap—to put on my rubber gardening boots and return to the farm.

But where to begin? After reading the essay “The Body and the Earth,” the answer became clear. I needed to start with the man whom many of these innovative agriculturists pointed to as their inspiration. I needed to travel to Kentucky to speak with Wendell Berry.

## BEGINNING THE CONVERSATION

We talked for several hours, sitting in those chairs on the veranda and watching the river pass below and the sun cross the sky. He told me about the foods that previous generations of Kentuckians used to eat (“the family cow, the poultry flock, the garden, and the meat hog—they all fed us”), about his career path from the farm to academia and then back to the farm, and about his three greatest passions: Tanya, his wife of fifty-one years; responsible forestry; and permanent pastures.

Finally our conversation turned to my project. I started by asking him about those sentences that had so inspired me in his essay. Specifically, what did he mean when he wrote that “there should be some profound resemblances between our treatment of our bodies and our treatment of the earth”? Wendell sat and rocked for a while, giving my question considerable thought.

“The critical question that you need to ask in both health care and farming is: What is the pattern you are making? Is the pattern going to be that of a factory, or that of a forest or the native prairie? We go to a place and we say to it, ‘Look, you are going to grow corn and you are going to grow it year after year.’ We are drawing on natural capital that we cannot replace. We have done the same thing with our health. We stop listening to ourselves and submit to that equation: organism equals machine. What happens then is you get some doctor who will cut your guts out of you without even looking at you.”

He pointed off into the distance, to a rolling pasture dotted with sheep.

“Take this hillside here. It is always in pasture now. It was row-cropped in earlier times, but that was a mistake.”

Truth be told, this was the first time I had thought about “factory medicine” as the counterpart to “factory farming.” But the concept made perfect sense and captured much of what I viewed as the shortcomings of our predominant model for health care: the wasting of resources, the overempha-

sis on pharmaceuticals for short-term benefit at the risk of long-term side effects, the focus on organs rather than organisms, and a general disregard for the body's natural ability to heal. I told Wendell Berry that I wanted to learn from farmers who were more holistic and patterned their farming on nature. I hoped to apply these lessons to my medical practice.

He nodded.

“You know, those terms ‘organic’ or ‘holistic’ you can wear on a T-shirt. But what people are trying to mean by those words is a kind of courtesy or respect, always accompanied by affection. When we make a decent marriage or friendship or farm, we make a partnership. In such a partnership, we look and listen to what our partner is trying to say back to us. We have a conversation where we are working for a mutual benefit.”

Stressing the word “mutual,” he leaned down and petted the border collie at his feet.

Just then, Tanya, his wife, appeared on the porch, having returned from town. In her presence, I watched Wendell transform from a farmer-philosopher to a dancing-eyed, droopy-grinned schoolboy. They talked about her day, which was largely spent ferrying grandkids, and then, with that silent accord that inevitably develops after fifty-one years of a good marriage, they both headed down the steps to start their early evening chores.

Happily I trailed behind, trying my best not to meddle as they checked on their sheep, fed the pair of llamas charged with protecting their flock, and tied up some loose boards in the barn with a piece of bailing twine.

“Daphne, there is very little in life that cannot be fixed with a good length of twine,” Wendell said as he gave a good final yank on his square knot.

Then he and I headed out to the pastures to move his two massive Percheron horses, animals he uses to pull his plows. Wendell's long legs easily cleared the same barbed-wire fences that I had to shimmy under. On our way, he bent forward and pulled up a clump of pasture, proudly showing me the old symbiotic patches of bluegrass and white clover.



“These have been slowly reappearing ever since we put this overtilled land in permanent pasture,” he explained. “Land that is under perennial cover is safe. The sod thatches like a rug on top of it and protects it from erosion. Perennials are deeper-rooted than annuals. They bring up nutrients and moisture that annuals can’t reach.”

When we returned to the house, Tanya was washing greens from the garden and beginning to prepare supper. In the warm evening light of the kitchen, I thanked them both, we hugged good-bye, and they generously invited me to come back when I had finished researching this book.

Then, with his hand on the screen door, Wendell gave me one last thought. This was his parting gift to me, a series of questions that I could rely on, as I journeyed from farm to farm, to start the conversation with farmers:

“You always need to ‘consult the genius of the place,’ ” he said, quoting the poet Alexander Pope. “You should ask the farmers, ‘What was here when you came? What was here before you came? What was here for you to start with? What does nature require of you here? What will nature help you to do here?’ ”

I’d read other interviews and essays in which Wendell Berry used this quotation from Pope, but in the context of what I was undertaking it had a whole new meaning. I climbed down the steep steps toward the river and my car, nearly falling on my face as I scribbled his last words into my notebook.